

SAFETY SILENCE: THE CONCEPTUALIZATION AND MEASUREMENT OF A NEW CONSTRUCT

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Communication between employees and supervisors about safety issues is a vital component of creating and maintaining a safe work environment. Safety communication, which occurs when employees feel comfortable discussing safety-related issues and concerns with supervisors, has been found to be associated with lower accident rates, more positive perceptions of an organization's safety climate, and increased safety behaviors. Individual-level accident or incident reporting behavior, a type of communication behavior which occurs when employees report injuries, damage, illnesses, or potentially hazardous safety-related situations to the appropriate authority, allows organizations to protect employees, identify ways to improve safety, and take preventative action against future accidents and injuries. Since these safety-related "speaking up" behaviors play such a vital role in workplace safety, it would be beneficial to identify the motives behind staying silent about safety-related issues.

Safety silence behavior occurs when employees do not feel comfortable speaking up about safety issues that they have witnessed at work. More specifically, safety silence refers to the *motives* behind this silence behavior. These motives can be based on perceptions of the effects of speaking up on others or relationships with others (relationship-based), perceptions of the organizational climate (climate-based), the assessment of the safety issue (issue-based), or characteristics of the job (job-based). For example, relationship-based safety silence may occur when individuals feel that tension in the workplace may arise from speaking up, climate-based safety silence may occur when employees perceive their managers as unsupportive of speaking up behaviors, issue-based safety silence can occur when a safety issue is perceived as harmless, and job-based safety silence may occur when time pressures or workload in a job prevent employees from speaking up about safety issues.

Employees that feel comfortable speaking up about safety issues are vital to the growth and development of an organization because they give supervisors and top management otherwise-missed opportunities to detect, correct, and prevent ongoing safety issues, and therefore, examining the *motives* behind safety silence behavior can be of value to organizations. Measuring safety silence can be used to develop more effective safety training programs in order to protect employees. In addition, organizations can use information about the motives behind safety silence behavior to refine policies and procedures, promote safety participation, and foster workplace environments in which speaking up behaviors are encouraged and supported.

Although previous research has examined constructs such as safety communication and accident-reporting behavior, there is no research, to our knowledge, on the motives behind a lack of these behaviors. Therefore, investigating motives behind safety silence behavior fills a clear gap in the safety literature. The objectives of this study are to: 1) conceptualize the construct of safety silence and investigate its motives, 2) develop a scale to measure safety silence, and 3) examine the relationships between safety silence and other well-established safety-related variables. Accordingly, this study is divided into three phases.

Phase I involved a qualitative study in which focus groups and interviews were conducted with individuals working in OSHA-regulated organizations ($n=26$). Critical incidents provided by participants were coded in two phases by the researchers and five subject matter experts, resulting in six themes describing the motives behind safety silence behavior: self-based, other-based, issue-based, relationship-based, job-based, and climate-based safety silence. A total of 15 scale items were written for each theme.

Phase II involved the development of the safety silence measure (SSM), which was found to have four distinct subscales tapping into different motives behind safety silence. The initial version of the scale was pilot tested in a sample of 329 nurses. An exploratory factor analysis was conducted to determine the number of factors in the SSM. Items that loaded onto one factor at .50 or above and did not load onto any other factor at .32 or above were retained. Items that lowered alpha reliability if removed, loaded onto more than one factor at .32 or above, correlated with another item at .80 or higher, or were repetitive were removed. This resulted in a four-factor measure with a total of 26 items. These four factors (or motives) were: 1) relationship-based, 2) climate-based, 3) issue-based, and 4) job-based. The self-based and other-based themes proposed in Phase I loaded onto the "relationship-based" factor.

Phase III involved validating the SSM. A confirmatory factor analysis (CFA) was conducted to determine whether the factor structure of the SSM from Phase II stayed consistent across samples. In Phase III, 311 completed a battery of questionnaires assessing safety silence and other well-established safety-related constructs. Results of our CFA indicated that our model established in Phase II had adequate fit ($\chi^2(277) = 541.02, p < .001, TLI = .93, CFI = .94, RMSEA = .06, SRMR = .07$). Our findings also suggest that safety silence is negatively related to safety climate, safety attitudes, safety communication, safety knowledge, safety motivation, and safety performance. In

addition, safety silence was found to contribute incremental variance in predicting safety performance above and beyond safety climate, safety knowledge, and safety motivation.

Our study yielded a thorough definition of safety silence and its motives, the SSM, and insight into the relationships between safety silence and key constructs in the safety literature. The ultimate goal of this research is to provide researchers and organizations with a tool to identify safety silence and its motives in the workplace so that steps can be taken to foster a workplace environment in which employees feel comfortable speaking up about safety issues. In addition, the development of the SSM opens several avenues for future research, such as the examination of the antecedents and outcomes of safety silence behavior.

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